CADMIUM

(Data in metric tons of cadmium content, unless otherwise noted)

Domestic Production and Use: Primary cadmium metal in the United States is produced by two companies, one in Illinois and one in Tennessee, as a byproduct of smelting and refining zinc metal from sulfide ore concentrates. Secondary cadmium is recovered from spent nickel-cadmium (Ni-Cd) batteries by one Pennsylvania company. Based on the average New York dealer price, the combined output of primary and secondary metal in 2000 was valued at about $265,000. Consumption of cadmium during the past 3 years declined by about 50% in response to environmental concern. About 75% of total apparent consumption was for batteries. The remaining 25% was distributed as follows: pigments, 13%; coatings and plating, 7%; stabilizers for plastics, 4%; and nonferrous alloys and other uses, 1%.

Salient Statistics—United States:	1996	1997	1998	1999	2000[e]
Production, refinery[1]	1,530	2,060	1,240	1,190	1,200
Imports for consumption, metal	843	790	514	294	250
Exports of metal, alloys, and scrap	201	554	180	20	40
Shipments from Government stockpile excesses	230	161	128	5	10
Consumption, apparent	2,250	2,510	2,030	1,300	1,270
Price, metal, dollars per pound[2]	1.24	0.51	0.28	0.14	0.10
Stocks, yearend, producer and distributor	1,110	1,060	729	893	1,040
Employment, smelter and refinery	NA	NA	NA	NA	NA
Net import reliance[3] as a percent of apparent consumption	32	19	38	9	6

Recycling: To date, cadmium recycling has been practical only for Ni-Cd batteries, some alloys, and dust from electric arc furnaces (EAF). The exact amount of recycled cadmium is unknown. In 2000, the U.S. steel industry generated more than 0.6 million tons of EAF dust, typically containing 0.003% to 0.07% cadmium. At least nine States required collection of rechargeable Ni-Cd batteries.

Import Sources (1996-99): Metal: Canada, 56%; Australia, 14%; Belgium, 10%; and other, 20%.

Tariff: Item	Number	Normal Trade Relations[4] 12/31/00
Cadmium sulfide	2830.30.0000	3.1% ad val.
Pigments and preparations based on cadmium compounds	3206.30.0000	3.1% ad val.
Unwrought cadmium; waste and scrap; powders	8107.10.0000	Free.

Depletion Allowance: 22% (Domestic), 14% (Foreign).

Government Stockpile:

Stockpile Status—9-30-00[5]

Material	Uncommitted inventory	Committed inventory	Authorized for disposal	Disposal plan FY 2000	Disposals FY 2000
Cadmium	799	215	799	544	329

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CADMIUM

Events, Trends, and Issues: During the last decade, regulatory pressure to reduce or even eliminate the use of cadmium has gained momentum in many developed countries. In the United States, Federal and State agencies regulate cadmium content in the environment. To help unify different standards, the U.S. Environmental Protection Agency created a list of persistent and bioaccumulative toxic pollutants. Cadmium is 1 of 11 metals on the list, and it is targeted for a 50% reduction by 2005. The International Cadmium Association objected to the rating used for creating the list because no distinction was made between various cadmium compounds and cadmium metal. The European Commission issued a new proposal to ban all Ni-Cd batteries containing more than 0.002% cadmium beginning on January 1, 2008, and to increase the collection rate for all spent industrial and automotive batteries to 95% by weight by December 31, 2003.

World Refinery Production, Reserves, and Reserve Base:

	Refinery production		Reserves[6]	Reserve base[6]
	1999	2000[e]		
United States	1,190	1,200	90,000	270,000
Australia	600	630	110,000	300,000
Belgium	1,400	1,200	—	—
Canada	1,390	2,350	55,000	160,000
China	2,200	2,250	13,000	35,000
Germany	1,100	1,100	6,000	8,000
Japan	2,600	2,550	10,000	15,000
Kazakhstan	1,060	1,000	25,000	40,000
Mexico	1,300	1,100	35,000	40,000
Russia	900	850	16,000	30,000
Other countries	5,360	5,070	240,000	330,000
World total (may be rounded)	19,100	19,300	600,000	1,200,000

World Resources: Estimated world resources of cadmium were about 6 million tons based on zinc resources containing about 0.3% cadmium. The zinc-bearing coals of the central United States, and Carboniferous-age coals of other countries, also contain large potential resources of cadmium.

Substitutes: Ni-Cd batteries are being replaced in some applications with lithium-ion and nickel-metal hydride batteries. However, the higher cost of these substitutes restricts their use. Except where the surface characteristics of the coating are critical (e.g., fasteners for aircraft), coatings of zinc or vapor-deposited aluminum can substitute for cadmium in plating applications. Cerium sulfide is used as a replacement for cadmium pigments, mostly for plastics.

[e]Estimated. NA Not available.

[1]Primary and secondary metal.

[2]Average New York dealer price for 99.95% purity in 5-short-ton lots. Source: Platt's Metals Week.

[3]Defined as imports - exports + adjustments for Government and industry stock changes.

[4]No tariff for Canada and Mexico for items shown.

[5]See Appendix B for definitions.

[6]See Appendix C for definitions.